

Carnoy Fixative

Introduction

The purpose of fixation is to preserve the original morphology and structure of cells and tissues. Fixatives prevent autolysis of tissues and cells by endogenous lysosomal enzymes while inhibiting the growth of bacteria and molds. Fixatives alter the internal structure of proteins through mechanisms such as coagulation and adduct formation, thereby inactivating enzymes. Commonly used fixatives include aldehydes, mercury-containing compounds, alcohols, oxidizers, and picrate salts. Among these, formaldehyde (from the aldehyde group) and ethanol (from the alcohol group) are the most frequently used.

Carnoy's Fixative is suitable for the fixation of general animal and plant tissues and cells, and is commonly used for squash preparations and paraffin sections of animal and plant samples. This fixative has extremely high penetrative power, with a recommended fixation time not exceeding 24 hours. Its characteristics include rapid cell penetration, preservation of chromosomal structure integrity, and enhancement of chromosome basophilia, achieving excellent staining results. It is suitable for tissue fixation for RNA and DNA staining, as well as for glycogen staining, where it preserves glycogen in fine granular form. Due to its strong penetrative power, it can also fix tissues with dense outer membranes that are otherwise difficult to permeate. If fixed tissues are not used immediately, they can be stored in 70% ethanol.

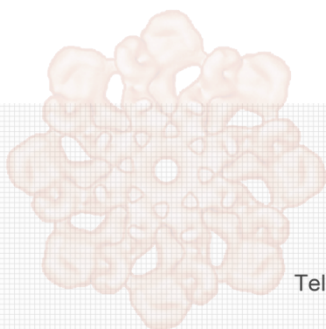
Protocol

1. For small tissue blocks: fix for 30–40 minutes.
2. For slightly larger tissue blocks: fix for 2–4 hours.
3. For larger tissue blocks, the fixation time can be appropriately extended but should not exceed 24 hours.

Note

1. Primary application: Commonly used for squash preparations and paraffin sections of animal and plant samples.
2. Carnoy's Fixative is hazardous to human health. Handle with care. Not suitable for fixing tissues intended for lipid staining.
3. Fixation time varies depending on tissue thickness.
4. Sufficient fixative volume must be used; generally, the volume ratio of fixative to tissue block should exceed 10:1.

5. Temperature significantly affects fixation. Elevated temperatures accelerate fixation, but the temperature should not be too high.
6. Fresh tissues should be fixed promptly after removal. If immediate fixation is not possible, store them in physiological saline and send for processing as soon as possible.
7. Storage and shipping conditions: Store at room temperature, protected from light; stable for one year. Ship at room temperature.
8. This product is for scientific use only.



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